

Notice of Allowability

Application No.

10/062,488

Examiner

Robert W. Wilson

Applicant(s)

KASA ET AL.

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 10/24/06.
2. ☒ The allowed claim(s) is/are 1-18.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

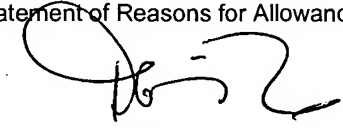
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 2/16/06
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 10/24/06
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


DORIS H. TO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with

 Brian E. Hennesey on ¹⁰5/24/06.

The application has been amended as follows:

Delete the following claim information:

1. A communication system comprising:

a network unit; and

a plurality of subscriber units connected to the network unit;

the network unit having means generating a message in which validity of transmission grant information is set for the subscriber units, means generating polling information to allocate a transmission grant to the subscriber units by using the transmission grant information, and means suspending a transmission of the polling information for a fixed time in consideration of a processing time of the subscriber units from a time when the message has been completely transmitted.

2. A communication system comprising:

a network unit; and

a plurality of subscriber units connected to the network unit;

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the network unit having the means generating a message in which validity of transmission grant information is set for the subscriber units, means generating polling information to allocate it transmission grant to the subscriber units by using the transmission grant information, a detecting means detecting a disconnection state of an inputted cell from the subscriber units, and a controlling means for suspending an operation of the detecting means detecting the transmission grant information for a fixed time in consideration of a processing time of the subscriber units from a time when the message and the polling information have been completely transmitted.

3. A communication system comprising:

a network unit; and

a plurality of subscriber units connected to the network unit;

the network unit having means generating a message in which validity of transmission grant information is set for the subscriber units, means generating polling information to allocate a transmission grant to the subscriber units by using the transmission grant information, a detecting means detecting a disconnection state of an inputted cell from the subscriber units, and a controlling means for monitoring a detection result of the detecting means from a time when the message and the polling information have been completely transmitted for validating and invalidating a function for the transmission grant information of the detecting means after respectively detecting and not detecting an inputted cell of validity and invalidity for the transmission grant information.

4. The communication system as claimed in claim 3 wherein the network unit is further provided with a timer for respectively validating and invalidating a function of the controlling means according to validity and invalidity of the transmission grant information only after a lapse of a

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fixed time from a time when the message and the polling information have been completely transmitted.

5. A communication system comprising:

a network unit; and

a plurality of subscriber units connected to the network unit;

the subscriber units having means recognizing a setting of validity and invalidity of transmission grant information in a message from the network unit, and means transmitting a message of the network unit when recognizing the setting of the validity and invalidating from the message, and the network unit having means generating the message, a detecting means detecting a disconnection state of an inputted cell, and means for validating and invalidating the detecting means when receiving a message from the subscriber units.

6. A communication system comprising:

a network unit; and

a plurality of subscriber units connected to the network unit;

the network unit having means managing plural kinds of transmission grant information, means performing a polling by the transmission grant information, means detecting transmission grant information coincident with the transmission grant information set from polling information of a same subscriber unit received by the polling, and means identifying a kind of transmission grant information based on the detected transmission grant information and distributing an inputted cell.

7. A communication system comprising: a network unit; and

a plurality of subscriber units connected to the network unit;

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the network unit having means for managing plural kinds of transmission grant information set in a message, means notifying a switchover of validity and invalidity transmission grant information to the subscriber units by a message, and means executing the switchover of the transmission grant information within the network unit itself after a fixed time in consideration of a processing time of the subscriber units from a time of the notification, and the subscriber units having means executing the switchover of the transmission grant information within the subscriber units themselves after the fixed time from a reception of the message.

8. A communication system comprising:

a plurality of subscriber units connected to the network unit;

the subscriber units having means executing the switchover of the validity and invalidity of plural kinds of transmission grant information set in a message, and means transmitting a message to the network unit when the recognizing switchover by message from the network unit, and

the network unit having a detecting means detecting a disconnection state of the inputted cell, and means executing the switchover of the transmission grant information within the network unit itself when receiving a message from the subscriber units and for validating and invalidating the detecting means.

9. A communication system comprising:

a network unit; and

a plurality of subscriber units connected to the network unit;

the network unit having means managing plural kinds of mini cell transmission grant information set in a message, means notifying a switchover of the validity and invalidity of the mini cell transmission grant information to the subscriber units by the message, and means for executing the

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switchover of the validity and invalidity of the mini cell transmission grant information within the network unit itself after a fixed time in consideration of the processing time of the subscriber units from a time of the notification, and the subscriber units having means executing the switchover of the mini cell transmission grant information within the subscriber units themselves after the fixed time from a reception of the message.

10. A communication system comprising:

a network unit; and

a plurality of subscriber units connected to the network unit;

the subscriber units having means recognizing plural settings of mini cell transmission grant information set in a message, and means transmitting a message to the network unit when recognizing a switchover of the setting by a message from the network unit, and

the network unit having a detecting means detecting a disconnection state of an inputted cell, and means executing the switchover of the setting of the mini cell transmission grant information within the network unit itself when receiving a message from the subscriber units and for validating and invalidating the detecting means

11. The communication system as claimed in claim 1 wherein the transmission grant information includes physical layer OAM cell transmission grant information and data cell transmission grant information.

12. The communication system as claimed in claim 2 wherein the transmission grant information includes physical layer OAM cell transmission grant information and data cell transmission grant information.

13. The communication system as claimed in claim 3 wherein the transmission grant information

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includes physical layer OAM cell transmission grant information and data cell transmission grant information.

14. The communication system as claimed in claim 4 wherein the transmission grant information includes physical layer OAM cell transmission grant information and data cell transmission grant information.

15. The communication system as claimed in claim 5 wherein the transmission grant information includes physical layer OAM cell transmission grant information and data cell transmission grant information.

16. The communication system as claimed in claim 4 wherein the transmission grant information includes physical layer OAM cell transmission grant information and data cell transmission grant information.

17. The communication system as claimed in claim 7 wherein the transmission grant information includes physical layer OAM cell transmission grant information and data cell transmission grant information.

18. The communication system as claimed in claim 8 wherein the transmission grant information includes physical layer OAM cell transmission grant information and data cell transmission grant information.

Replace with the following claim information:

1. A communication system comprising:

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a network unit; and

a plurality of subscriber units connected to the network unit;

the network unit having means for generating a message in which validity of transmission grant information is set for the subscriber units, means for generating polling information to allocate a transmission grant to the subscriber units by using the transmission grant information, and means for suspending a transmission of the polling information for a fixed time in consideration of a processing time of the subscriber units from a time when the message has been completely transmitted.

2. A communication system comprising:

a network unit; and

a plurality of subscriber units connected to the network unit;

the network unit having the means for generating a message in which validity of transmission grant information is set for the subscriber units, means for generating polling information to allocate a transmission grant to the subscriber units by using the transmission grant information, a detecting means for detecting a disconnection state of an inputted cell from the subscriber units, and a controlling means for suspending an operation of the detecting means for detecting the transmission grant information for a fixed time in consideration of a processing time of the subscriber units from a time when the message and the polling information have been completely transmitted.

3. A communication system comprising:

a network unit; and

a plurality of subscriber units connected to the network unit;

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the network unit having means for generating a message in which validity of transmission grant information is set for the subscriber units, means for generating polling information to allocate a transmission grant to the subscriber units by using the transmission grant information, a detecting means for detecting a disconnection state of an inputted cell from the subscriber units, and a controlling means for monitoring a detection result of the detecting means from a time when the message and the polling information have been completely transmitted for validating/invalidating a function for the transmission grant information of the detecting means after respectively detecting/not detecting an inputted cell of validity/invalidity for the transmission grant information.

4. The communication system as claimed in claim 3 wherein the network unit is further provided with a timer for respectively validating/invalidating a function of the controlling means according to validity/invalidity of the transmission grant information only after a lapse of a fixed time from a time when the message and the polling information have been completely transmitted.

5. A communication system comprising:

a network unit; and

a plurality of subscriber units connected to the network unit;

the subscriber units having means for recognizing a setting of validity/invalidity of transmission grant information in a message from the network unit, and means for transmitting a message of the network unit when recognizing the setting of the validity/invalidating from the message, and the network unit having means for generating the message, a detecting means for detecting a disconnection state of an inputted cell, and means for validating/invalidating the detecting means when receiving a message from the subscriber units.

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6. A communication system comprising:

a network unit; and

a plurality of subscriber units connected to the network unit;

the network unit having means for managing plural kinds of transmission grant information, means for detecting transmission grant information coincident with the transmission grant information set from polling information of a same subscriber unit received by the polling, and means for identifying a kind of transmission grant information based on the detected transmission grant information and for distributing an inputted cells.

7. A communication system comprising: a network unit; and

a plurality of subscriber units connected to the network unit;

the network unit having means for managing plural kinds of transmission grant information set in a message, means for notifying a switchover of validity/invalidity transmission grant information to the subscriber units by a message, and means for executing the switchover of the transmission grant information within the network unit itself after a fixed time in consideration of a processing time of the subscriber units from a time of the notification, and

the subscriber units having means for executing the switchover of the transmission grant information within the subscriber units themselves after the fixed time from a reception of the message.

8. A communication system comprising:

a plurality of subscriber units connected to the network unit;

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the subscriber units having means for executing the switchover of the validity/invalidity of plural kinds of transmission grant information set in a message, and means for transmitting a message to the network unit when the recognizing switchover by message from the network unit, and the network unit having a detecting means for detecting a disconnection state of the initted cell, and means for executing the switchover of the transmission grant information within the network unit itself when receiving a message from the subscriber units and for validating/invalidating the detecting means.

9.A communication system comprising:

a network unit; and

a plurality of subscriber units connected to the network unit;

the network unit having means for managing plural kinds of mini cell transmission grant information set in a message, means for notifying a switchover of the validity/invalidity of the mini cell transmission grant information to the subscriber units by the message, and means for executing the switchover of the validity/invalidity of the mini cell transmission grant information within the network unit itself after a fixed time in consideration of the processing time of the subscriber units form a time of the notification, and the subscriber units having means for executing the switchover of the mini cell transmission grant information within the subscriber units themselves after the fixed time from a reception of the message.

10.A communication system comprising:

a network unit; and

a plurality of subscriber units connected to the network unit;

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the subscriber units having means for recognizing plural settings of mini cell transmission grant information set in a message, and means for transmitting a message to the network unit when recognizing a switchover of the setting by a message from the network unit, and the network unit having a detecting means for detecting a disconnection state of an inputted cell, and means for executing the switchover of the setting of the mini cell transmission grant information within the network unit itself when receiving a message from the subscriber units and for validating/invalidating the detecting means

11. The communication system as claimed in claim 1 wherein the transmission grant information includes physical layer OAM cell transmission grant information and data cell transmission grant information.

12. The communication system as claimed in claim 2 wherein the transmission grant information includes physical layer OAM cell transmission grant information and data cell transmission grant information.

13. The communication system as claimed in claim 3 wherein the transmission grant information includes physical layer OAM cell transmission grant information and data cell transmission grant information.

14. The communication system as claimed in claim 4 wherein the transmission grant information includes physical layer OAM cell transmission grant information and data cell transmission grant information.

15. The communication system as claimed in claim 5 wherein the transmission grant information

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includes physical layer OAM cell transmission grant information and data cell transmission grant information.

16. The communication system as claimed in claim 4 wherein the transmission grant information includes physical layer OAM cell transmission grant information and data cell transmission grant information.

17. The communication system as claimed in claim 7 wherein the transmission grant information includes physical layer OAM cell transmission grant information and data cell transmission grant information.

18. The communication system as claimed in claim 8 wherein the transmission grant information includes physical layer OAM cell transmission grant information and data cell transmission grant information.

Delete the following in the specification:

At page 4, paragraph 2, starting on line 9:

This message serves to notify the codes of the data cell 10 transmission grant information and the PLOAM cell transmission grant information, and their validity and invalidity (activation and deactivation) settings to the subscriber unit.

At page 4, last paragraph, starting on last line:

The subscriber units performs the same validity and invalidity processing as the transmission grant allocation message (see Fig. 24) to the notified mini cell transmission grant information if

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the destination is the subscriber unit itself. Also, as for this transmission grant information, the subscriber unit sets/releases the payload length, an offset value, a service ID of the mini cell transmitted to the transmission grant information.

At page 5, paragraph 4, starting on line 13:

In the network unit OLT, a transmission grant information manager manages various transmission grant information and setting of validity and invalidity on the subscriber units ONU's one-on-one, and manages the payload length of the cell of the subscriber unit ONU top which the mini cell transmission grant information is allocated, an offset value indicating the position in the slot, and a service ID as for the mini cell transmission grant information.

At page 6, paragraph 3, starting on line 9:

In the subscriber unit ONU, a message processor 21 acquires the various transmission grant information form the PLOAM cell extracted at the PLOAM cell demultiplexer 22 , and sets the validity and invalidity thereof. As for the mini cell transmission grant information, the message processor 21 further extracts the payload length and the offset value.

At page 7, last paragraph staring on line 25:

Also, as for the mini cell transmission grant information, a single transmission grant information is used for a group. Therefore, when a certain subscriber unit is not found valid and invalid, there are some cases where polling information by the transmission grant information is generated to the other subscriber unit in which the transmission grant

information is valid, and there is a possibility that the input disconnection state is similarly detected.

At page 8, last paragraph, stating on line 28,

Namely, after transmitting a message to each of the subscriber units, the network unit stops the transmission of polling information to 130 allocate a transmission grant by transmission grant information during a period of the validity and invalidity of the transmission grant information included in the message being undetermined (during a period of the processing of the subscriber unit being estimated to be completed), and avoids the execution of an input disconnection state (LOST) detecting of the subscriber unit. Thus, a malfunction of the making the subscriber unit non-operation state can be avoided.

At page 9, last paragraph, stating on line 27, and continuing through the last paragraph of page 10, ending on page 11, line 3.

In the invention of claim 3, the network unit has means for generating a message in which validity of transmission grant information is set for the subscriber units, means for generating polling information to allocate a transmission grant to the subscriber units by using the transmission grant information, input disconnection detecting means for detecting a disconnection state of an inputted cell from the subscriber units, and input disconnection detecting switchover controlling means for monitoring a detection result of the input disconnection detecting means from a time when the message and the polling information have been completely transmitted and for validating and invalidating a function for the transmission grant information of the input disconnection detecting means

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after respectively detecting and not detecting an inputted cell of validity and invalidity for the transmission grant information.

Namely, the network unit switches over the execution and non-execution of the subsequent input disconnection detection based on the presence and absence (detection and non-detection) of the inputted cell for the polling information by the transmission grant information, instead of suspending the processing completion for the validity and invalidity of the transmission grant information in the subscriber unit for a fixed time as in the invention of claim 2.

It is to be noted that a timer may be used to suspend the switchover for a fixed time after the validity and invalidity of the input disconnection detection is switched over in the invention of claim 3 as in the invention of claim 4.

In the invention of claim 5, the subscriber units have means for recognizing a setting of validity and invalidity of transmission grant information in a message from the network unit, and means for transmitting a message to the network unit when recognizing the setting of the validity and invalidity from the message, and the network unit has means for generating the message, input disconnection detecting means for detecting a disconnection state of an inputted cell, and means for validating and invalidating the input disconnection detecting means when receiving a message from the subscriber units.

Namely, the processing completion of the subscriber unit is not determined only by the network unit as mentioned above, but a message is notified from the network unit to the subscriber unit, so that the subscriber unit switches over the validity and invalidity of the input disconnection detection by the reception of the message.

At page 11, paragraph 3, starting on line 19.

In the invention of claim 7, the network unit has means for managing a plural kinds of transmission grant information set in a message, means for notifying a switchover of the validity and invalidity of the transmission grant information to the subscriber units by a message, and means for executing the switchover of the transmission grant information within the network unit itself after a fixed time in consideration of a processing time of the subscriber units from a time of the notification, and the subscriber units have means for executing the switchover of the transmission grant information within the subscriber units themselves after the fixed time from the reception of the message.

At page 12, paragraph 3, starting on line 8,

In the invention of claim 8, the subscriber units have means for recognizing a switchover of validity and invalidity of plural kinds of transmission grant information set in a message, and means for transmitting a message to the network unit when recognizing the switchover by a message from the network unit, and the network unit has input disconnection detecting means for detecting a disconnection state of an inputted-cell, and means for executing the switchover of the transmission grant information within the network unit itself when receiving a message from the subscriber units and for validating and invalidating the input disconnection detecting means.

At page 12, last paragraphs, starting on line 27,

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In the invention of claim 9, the network unit has means for managing a plural kinds of mini cell transmission grant information set in a message, means for notifying a switchover of the validity and invalidity of the mini cell transmission grant information to the subscriber units by the message, and means for executing the switchover of the validity and invalidity of the mini cell transmission grant information within the network unit itself after a fixed time in consideration of a processing time of the subscriber units from a time of the notification and the subscriber units have means for executing the switchover of the mini cell transmission grant information within the subscriber units themselves after the fixed time from reception of a message

At page 13, paragraph 3, starting on line 16:

In the invention of claim 10, the subscriber units have means for recognizing plural mini cell transmission grant information set in a message, and means for transmitting a message to the network unit when recognizing a switchover of the setting by a message from the network unit, and the network unit has input disconnection detecting means for detecting a disconnection state of an inputted cell, and means for executing the switchover of the setting of the mini cell transmission grant information within the network unit itself when receiving a message from the subscriber units and for validating and invalidating the input disconnection detecting means.

At page 14, paragraph 5, starting on line 17, and continuing through to page 15, paragraph 2, starting on line 4:

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Fig. 4 is a time chart showing an operation example (input disconnection detection and non-detection timing) of an embodiment (2) of the communication system according to the present invention;

Fig. 5 is a block diagram showing an arrangement of an embodiment (3) of a communication system according to the present invention.

Fig. 6 is a time chart showing an operation example (input disconnection detection and non-detection timing) of an embodiment (3) of a communication system according to the present invention.

Fig 7. is a block diagram showing an arrangement of an embodiment (4) of a communication system according to the present invention

Fig. 8A and 8B are time charts showing an operation example (input disconnection detection and non-detection timing) of an embodiment (4) of a communication system according to the present invention;

Fig 9 is a block diagram showing an arrangement of an embodiment (5) of a communication system according to the present invention;

Fig 10 is a time chart showing an operation example (input disconnection detection and non-detection timing) of an embodiment (5) of a communication system according to the present invention;

At page 21, paragraph 2, starting on line 5.

It is to be noted that as shown in Fig. 10, a fixed time from the message transmission to the time when the transmission grant information is validated and invalidated in the subscriber unit ONU, and a fixed time from the message reception to the time when the transmission grant information is made the object or non-object of the input disconnection detection in the network unit OLT may be provided as a suspension time.

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Replace the following in the specification:

At page 4, paragraph 2, starting on line 9:

This message serves to notify the codes of the data cell 10 transmission grant information and the PLOAM cell transmission grant information, and their validity/invalidity (activation/deactivation) settings to the subscriber unit.

At page 4, last paragraph, starting on last line:

The subscriber units performs the same validity/invalidity processing as the transmission grant allocation message (see Fig. 24) to the notified mini cell transmission grant information if the destination is the subscriber unit itself. Also, as for this transmission grant information, the subscriber unit sets/releases the payload length, an offset value, a service ID of the mini cell transmitted to the transmission grant information.

At page 5, paragraph 4, starting on line 13:

In the network unit OLT, a transmission grant information manager manages various transmission grant information and setting of validity/invalidity on the subscriber units ONU's one-on-one, and manages the payload length of the cell of the subscriber unit ONU top which the mini cell transmission grant information is allocated, an offset value indicating the position in the slot, and a service ID as for the mini cell transmission grant information.

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At page 6, paragraph 3, starting on line 9:

In the subscriber unit ONU, a message processor 21 acquires the various transmission grant information from the PLOAM cell extracted at the PLOAM cell demultiplexer 22, and sets the validity/invalidity thereof. As for the mini cell transmission grant information, the message processor 21 further extracts the payload length and the offset value.

At page 7, last paragraph starting on line 25:

Also, as for the mini cell transmission grant information, a single transmission grant information is used for a group. Therefore, when a certain subscriber unit is not found valid/invalid, there are some cases where polling information by the transmission grant information is generated to the other subscriber unit in which the transmission grant information is valid, and there is a possibility that the input disconnection state is similarly detected.

At page 8, last paragraph, stating on line 28,

Namely, after transmitting a message to each of the subscriber units, the network unit stops the transmission of polling information to 130 allocate a transmission grant by transmission grant information during a period of the validity/invalidity of the transmission grant information included in the message being undetermined (during a period of the processing of the subscriber unit being estimated to be completed), and avoids the execution of an input disconnection state (LOST) detecting of the subscriber unit. Thus, a malfunction of the making the subscriber unit non-operation state can be avoided.

At page 9, last paragraph, stating on line 27, and continuing through the last paragraph of

page 10, ending on page 11, line 3.

In the invention of claim 3, the network unit has means for generating a message in which validity of transmission grant information is set for the subscriber units, means for generating polling information to allocate a transmission grant to the subscriber units by using the transmission grant information, input disconnection detecting means for detecting a disconnection state of an inputted cell from the subscriber units, and input disconnection detecting switchover controlling means for monitoring a detection result of the input disconnection detecting means from a time when the message and the polling information have been completely transmitted and for validating/invalidating a function for the transmission grant information of the input disconnection detecting means after respectively detecting/not detecting an inputted cell of validity/invalidity for the transmission grant information.

Namely, the network unit switches over the execution/non-execution of the subsequent input disconnection detection based on the presence/absence (detection/non-detection) of the inputted cell for the polling information by the transmission grant information, instead of suspending the processing completion for the validity/invalidity of the transmission grant information in the subscriber unit for a fixed time as in the invention of claim 2.

It is to be noted that a timer may be used to suspend the switchover for a fixed time after the validity/invalidity of the input disconnection detection is switched over in the invention of claim 3 as in the invention of claim 4.

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In the invention of claim 5, the subscriber units have means for recognizing a setting of validity/invalidity of transmission grant information in a message from the network unit, and means for transmitting a message to the network unit when recognizing the setting of the validity/invalidity from the message, and the network unit has means for generating the message, input disconnection detecting means for detecting a disconnection state of an inputted cell, and means for validating/invalidating the input disconnection detecting means when receiving a message from the subscriber units.

Namely, the processing completion of the subscriber unit is not determined only by the network unit as mentioned above, but a message is notified from the network unit to the subscriber unit, so that the subscriber unit switches over the validity/invalidity of the input disconnection detection by the reception of the message.

At page 11, paragraph 3, starting on line 19.

In the invention of claim 7, the network unit has means for managing a plural kinds of transmission grant information set in a message, means for notifying a switchover of the validity/invalidity of the transmission grant information to the subscriber units by a message, and means for executing the switchover of the transmission grant information within the network unit itself after a fixed time in consideration of a processing time of the subscriber units from a time of the notification, and the subscriber units have means for executing the switchover of the transmission grant information within the subscriber units themselves after the fixed time from the reception of the message.

At page 12, paragraph 3, starting on line 8,

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In the invention of claim 8, the subscriber units have means for recognizing a switchover of validity/invalidity of plural kinds of transmission grant information set in a message, and means for transmitting a message to the network unit when recognizing the switchover by a message from the network unit, and the network unit has input disconnection detecting means for detecting a disconnection state of an inputted-cell, and means for executing the switchover of the transmission grant information within the network unit itself when receiving a message from the subscriber units and for validating/invalidating the input disconnection detecting means.

At page 12, last paragraphs, starting on line 27,

In the invention of claim 9, the network unit has means for managing a plural kinds of mini cell transmission grant information set in a message, means for notifying a switchover of the validity/invalidity of the mini cell transmission grant information to the subscriber units by the message, and means for executing the switchover of the validity/invalidity of the mini cell transmission grant information within the network unit itself after a fixed time in consideration of a processing time of the subscriber units from a time of the notification and the subscriber units have means for executing the switchover of the mini cell transmission grant information within the subscriber units themselves after the fixed time from reception of a message

At page 13, paragraph 3, starting on line 16:

In the invention of claim 10, the subscriber units have means for recognizing plural mini cell transmission grant information set in a message, and means for transmitting a message to the network unit when recognizing a switchover of the setting by a message

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form the network unit, and the network unit has input disconnection detecting means for detecting a disconnection state of an inputted cell, and means for executing the switchover of the setting of the min cell transmission grant information within the network unit itself when receiving a message form the subscriber units and for validating/invalidating the input disconnection detecting means.

At page 14, paragraph 5, starting on line 17, and continuing through to page 15, paragraph 2, starting on line 4:

Fig. 4 is a time chart showing an operation example (input disconnection detection/non-detection timing) of an embodiment (2) of the communication system according to the present invention;

Fig. 5 is a block diagram showing an arrangement of an embodiment (3) of a communication system according to the present invention.

Fig. 6 is a time chart showing an operation example (input disconnection detection/non-detection timing) of an embodiment (3) of a communication system according to the present invention.

Fig 7. is a block diagram showing an arrangement of an embodiment (4) of a communication system according to the present invention

Fig. 8A and 8B are time charts showing an operation example (input disconnection detection/non-detection timing) of an embodiment (4) of a communication system according to the present invention;

Fig 9 is a block diagram showing an arrangement of an embodiment (5) of a communication system according to the present invention;

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Fig 10 is a time chart showing an operation example (input disconnection detection/non-detection timing) of an embodiment (5) of a communication system according to the present invention;

At page 21, paragraph 2, starting on line 5.

It is to be noted that as shown in Fig. 10, a fixed time from the message transmission to the time when the transmission grant information is validated/invalidated in the subscriber unit ONU, and a fixed time from the message reception to the time when the transmission grant information is made the object/non-object of the input disconnection detection in the network unit OLT may be provided as a suspension time.

Allowable Subject Matter

2. Claims 1-18 are allowed.

The following is an Examiner's statement of reasons for allowance:

The closest prior art is Khelghatti (U.S. Patent No.: 5,844,906) which is and IDS document of record.

Claims 1-18 are considered allowable since when reading the claims in light of the specification, none of the references of record alone or in combination disclose or suggest the combination of limitations specified in the independent claims including:

“means for suspending a transmission of the polling information for a fixed time in consideration of a processing time of the subscriber units from a time when the message has been completely transmitted” as specified in claim 1.

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“controlling means for suspending an operation of the detecting mean for detecting the transmission grant information for a fixed time in consideration of that processing time of the subscriber units from a time when the message and the polling information have been completely transmitted” as claimed in claim 2.

”controlling means for monitoring a detection result of the detecting mean from a time when the message and the polling information have been completely transmitted for validating/invalidating a function for the transmission grant information of the detecting means after respectively detecting / not detecting an inputted cell of validity/invalidity for transmission grant information“ as specified in claim 3.

“a detecting means for detecting a disconnection state of an inputted cell and means for validating/invalidating the detecting means when receiving a message from the subscriber units” as specified in claim 5.

“means for detecting transmission grant information coincident with the transmission grant information set from polling information of a same subscriber unit received by polling and means for identifying a kind of transmission grant information based on the detected transmission grant information and for distributing an inputted cell” as claimed in claim 6.

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“means for executing the switchover of the transmission grant information within the network unit itself after a fixed time in consideration of a processing time of the subscriber units from a time of the notification” as claimed in claim 7.

“the network unit having a detecting means for detecting a disconnection state of an inputted cell, and means for executing the switchover of the transmission grant information within the network unit itself when receiving a message from the subscriber units for validating/invalidating the detecting means” as claimed in claim 8.

“means for executing the switchover of the validity/invalidity of the mini cell transmission grant information within the network unit itself after a fixed time in consideration of a processing time of the subscriber units from a time of the notification” as specified in claim 9.

“the network unit having the means for detecting a disconnection state of an inputted cell and means for executing the switchover of the setting of the mini cell transmission grant information within the network unit itself when receiving a message from the subscriber units and validating/invalidating detecting means” as claimed in claim 10.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

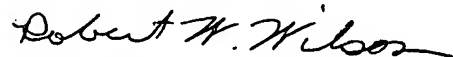
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Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert W. Wilson whose telephone number is 571/272-3075. The examiner can normally be reached on M-F (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on 571/272-7629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Robert W Wilson
Examiner
Art Unit 2616

RWW
10/26/06